

CHANGES IN THE RISK OF TONSILLECTOMY OVER THE PERIOD 1880-1949

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IN 1928, Collins published a bulletin "An Epidemiological and Statistical Study of Tonsillitis" (1). The bulletin included data on tonsillectomies. In the introduction to the bulletin, Sydenstricker made the following comments concerning some of the findings reported by Collins: ". . . There is an apparent association of diseased tonsils with the frequency of other respiratory diseases (not causes of death) among children, with illnesses from rheumatism, heart disease, cervical adenitis, ear conditions and diphtheria. Tonsillectomy which attained its highest popularity a few years ago and which is now universal, although applied perhaps with increasing discrimination, while removing the specific diseased condition and presumably preventing some of the associated conditions already referred to, apparently does not affect the subsequent incidence of measles, whooping cough and mumps; on the contrary, for some as yet unexplained reason, the incidence of these infections was observed to be somewhat greater among children whose tonsils had been removed than among those who had not had tonsillectomy" (1).

These comments by Sydenstricker were made somewhat more than twenty years ago and it is of interest to know whether, in the meantime, the popularity of tonsillectomy has increased or decreased. The purpose of this paper is to show the change in the risk of tonsillectomy over the period 1880-1949.

DATA AND METHOD OF STUDY

The data included in this report are drawn from information collected in a study of acute respiratory illness which was conducted over a period of three school years, September, 1946-May, 1949, in two communities, Pleasantville and Mt. Kisco in Westchester County, New York (2). The population consisted of members of virtually all families in each community in which

¹ From the Milbank Memorial Fund. This is the eleventh in a series of papers dealing with a study of respiratory illness.

there was one or more children attending grade school or high school.²

On the first visit to the family, information was sought for each member of the family concerning the presence or absence of tonsils. If tonsils had been removed a record was obtained as to the person's age when the tonsillectomy was performed. Since most of this information was obtained from the housewife and she did not always know her husband's status concerning a history of tonsillectomy, she was requested to obtain the needed information from him or if possible from his parents.

The data in this analysis are limited to the records of the members of the families under observation in the two communities during the school year September, 1948–May, 1949. Infants under 1 year of age were not considered at risk of tonsillectomy; consequently the population includes only those persons 1 year of age or older during their observation.

Nineteen hundred and ninety-one, or 46 per cent of the total 4,374 persons observed had had tonsils removed. Information concerning age at the time of removal was vague for 135; 114 were reported to have had tonsils removed "as a child," and 21 "during their teens." The term "as a child" has been considered as applying to ages 5–9 and the 114 persons in this group were distributed evenly over that five-year age period. The same method of procedure was followed for those who reported having tonsils removed "during their teens."

The fact of whether there had been a tonsillectomy was unknown for only 73, or 1.6 per cent of the total persons observed in the school year September, 1948–May, 1949.³

RISK OF TONSILLECTOMY

In order to study the change in the risk of tonsillectomy over a period of sixty-nine years, 1880–1949, the population was divided into three groups. Group 1 includes persons born before 1910; these persons were 40 years of age or older in 1949. Group 2 includes persons born during the period 1910–1929;

² Less than 1 per cent of the families in either community refused to cooperate in the special study.

³ If all three school years are combined the proportion of persons unknown as to tonsillectomy status is somewhat higher, 3 per cent compared with 1.6 per cent in 1948–1949.

SEX	NUMBER OF PERSONS			
	Persons Born Before 1910	Persons Born 1910-1929	Persons Born 1930-1948	Total All Years
Male	664	462	1,022	2,148
Female	542	650	1,034	2,226

Table 1. Number of male and female persons born in three twenty-year periods and for whom a history of tonsillectomy was obtained.

they were 20-39 years of age in 1949. Group 3 was composed of those born in the period 1930-1948; their ages ranged from 1-19 years in 1949.

Table 1 shows the number of male and female persons born in each period. Forty-seven per cent of the total persons were born in the most recent time period, 25 per cent were born in the twenty-year period, 1910-1929, and 28 per cent were born before 1910.

An adaptation of life-table methods has been used to study the risk of tonsillectomy at specific ages in each of the three periods of years. The probability of tonsillectomy at a given age is obtained by the use of the following formula: $q_x = \frac{t_x}{l_x}$; l_x is the number of persons at risk of tonsillectomy and t_x is the number of persons who had a tonsillectomy at that age.

The 4,374 persons included in the study were classified according to the occupation of the head of the household of which they were members. The data are shown according to three classes: (1) professional and managerial class, (2) clerical and skilled workers, and (3) semi-skilled or unskilled workers.

Figure 1 shows the probability of tonsillectomy for males and females born in each of the three time periods. These data include only persons in families where the head of the household was in the professional or managerial occupational class. These curves represent cumulative per cents. They show the proportion at each age who have had their tonsils removed. In each of the three time periods the curve for persons in both sex groups rose continuously as age increased. Among those in the

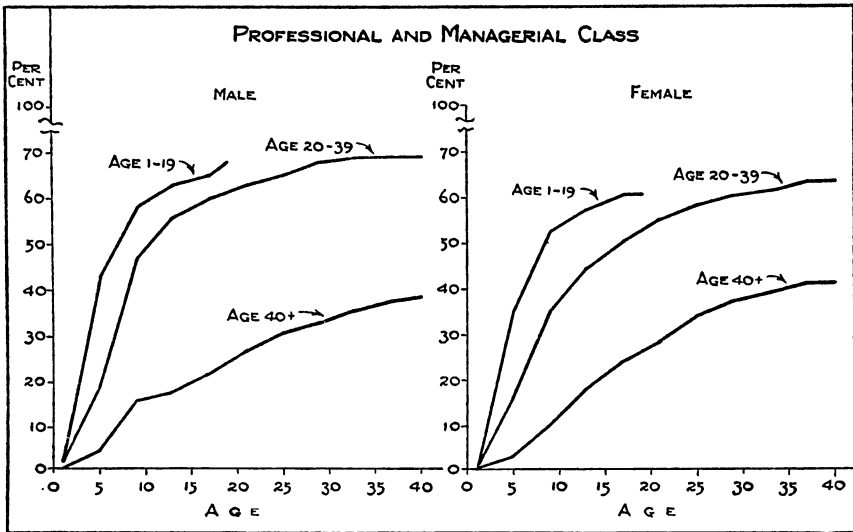


Fig. 1. Per cent of persons at specific ages who had had tonsils removed. The population includes members of families where the head of the household was in the professional or managerial occupational class. The data are shown by sex for three different periods of time: (1) persons born before 1910, aged 40 and over at the time of observation; (2) persons born from 1910-1929, aged 20-39 at the time of observation; and (3) those born during the period 1930-1948, aged 1-19 at the time of their observation in 1949. Pleasantville and Mt. Kisco, New York.

older age groups, persons aged 20-39 and those 40 years and over, when last observed, there is some tendency for the curves to maintain a level after age 35. This was true of both sexes.

The most striking point brought out by Figure 1 is the difference in the risk of tonsillectomy in the three successive periods of time. For example, among males 40 years of age or older in 1949, only 4 per cent had their tonsils removed by the time they were age 5 compared with 18 per cent of those in the subsequent period, persons aged 20-39 in 1949. In the most recent period of time, 42 per cent had their tonsils removed by the time they were 5 years of age.

By the time of age 19, males born in each of the two periods after 1909 showed fairly similar proportions with a history of having had a tonsillectomy. The per cents are 67 and 61 for the most recent and the later time period, respectively. These percentages are more than twice as high as that noted for males who were 40 years of age or older in 1949. At age 19, only 24

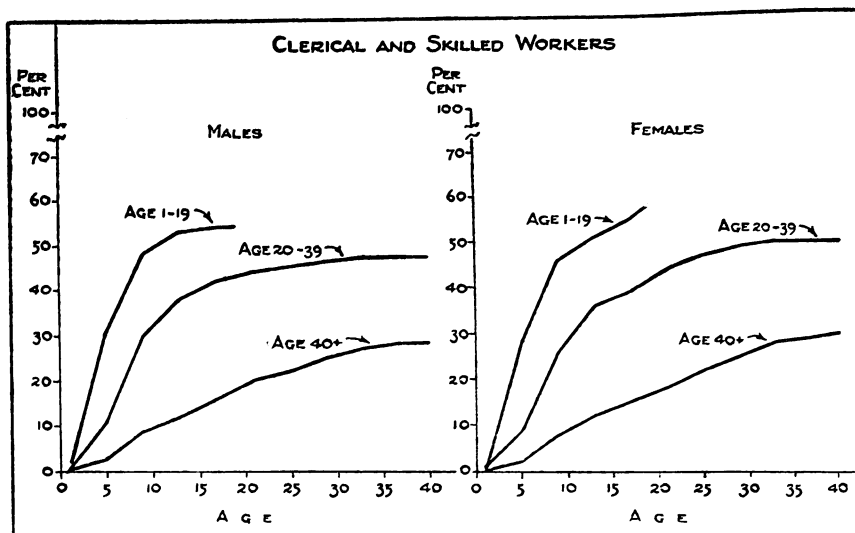


Fig. 2. Per cent of persons at specific ages who had had tonsils removed. The population includes members of families where the head of the household was in the clerical or skilled-worker class. The data are shown by sex for three different periods of time: (1) persons born before 1910, aged 40 and over at the time of their observation; (2) persons born from 1910-1929, aged 20-39 at the time of observation; and (3) those born during the period 1930-1948, aged 1-19 at the time of their observation in 1949. Pleasantville and Mt. Kisco, New York.

per cent had had their tonsils removed. The data for females show the same general indications as those noted for males.

Figures 2 and 3 show the same type of data for persons in families where the head of the household was in the clerical or skilled-worker class and for those in the semi-skilled and unskilled-worker class as was presented in Figure 1. The data presented in each chart indicate the same general differences in the risk of tonsillectomy in the different time periods as were noted for the population portrayed in Figure 1.⁴

These data indicate very clearly a considerable increase in popularity of tonsillectomy after 1910. It may be assumed that many tonsillectomies were done as a prophylactic measure. There is no evidence that during the most recent period of time, 1930-1949, there has been any abatement in the frequency of tonsillectomy compared with the previous twenty years. Nor do the data suggest the use of greater discrimination in the

⁴ Appendix Table 1 shows the population upon which Figures 1, 2, and 3 are based.

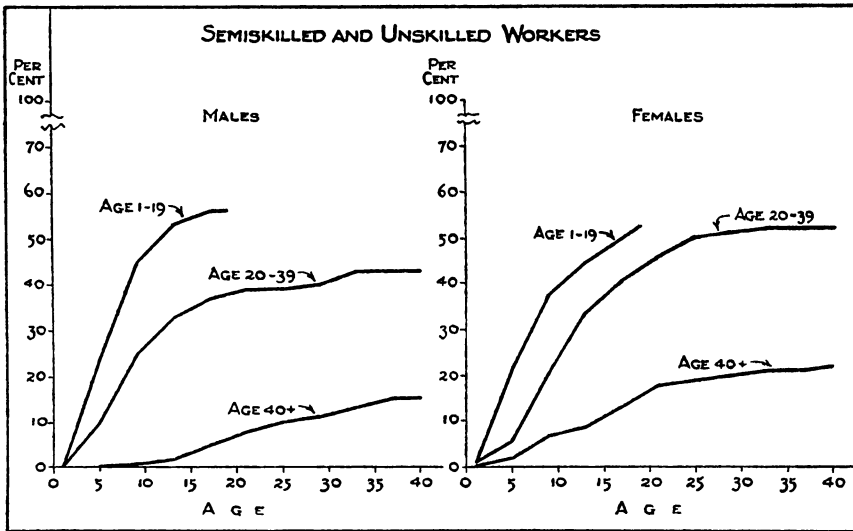


Fig. 3. Per cent of persons at specific ages who had had tonsils removed. The population includes members of families where the head of the household was in the semiskilled or unskilled-worker class. The data are shown by sex for three different periods of time: (1) persons born before 1910, aged 40 and over at the time of their observation; (2) persons born from 1910-1929, aged 20-39 at the time of observation; and (3) those born during the period 1930-1948, aged 1-19, at the time of their observation in 1949. Pleasantville and Mt. Kisco, New York.

selection of persons subjected to this operative procedure than was true in the period of 1910-1929.

Figure 4 shows the per cent of males and females at each age in each time period who had had a tonsillectomy. All occupational classes in the two communities have been combined; consequently the data for all families may be considered to be fairly representative of communities similar to the two studied in Westchester County, New York.⁵

In the most recent period of time, 55 per cent of the males and 58 per cent of the females had had their tonsils removed by the time they reached age 19. Among persons born during the period 1910-1929, 48 per cent of the males and 47 per cent of the females had had their tonsils removed by the time they were 19 years of age. These per cents are strikingly different when compared with those among persons born before 1910. Only 18 per cent of the males and 20 per cent of the females

⁵ Appendix Tables 3, 4, 5, 6, 7, and 8 show the data upon which Figure 4 is based.

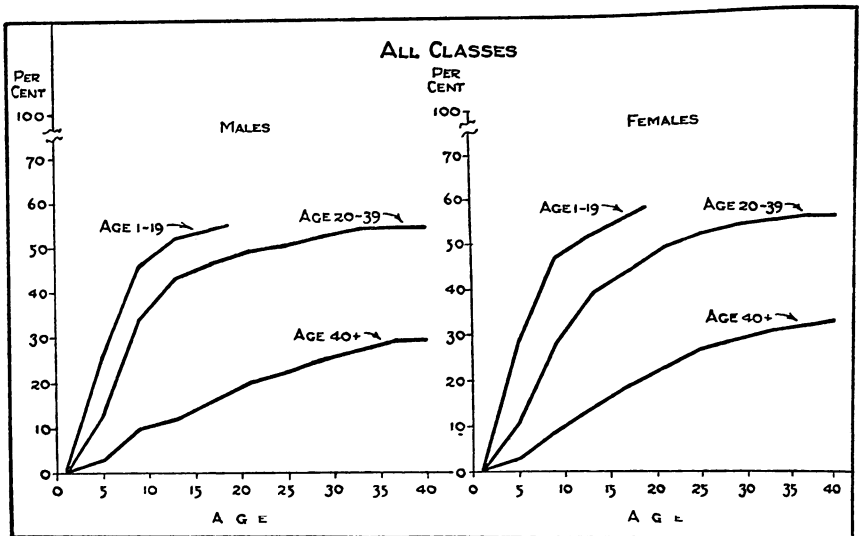


Fig. 4. Per cent of persons at specific ages who had had tonsils removed. The percentages are based upon members of all families observed in 1949. The data are shown by sex for three different periods of time: (1) persons born before 1910, aged 40 and over at the time of their observation; (2) persons born from 1910-1929, aged 20-39 at the time of observation; and (3) those born during the period 1930-1948, aged 1-19 at the time of their observation in 1949. Pleasantville and Mt. Kisco, New York.

in this group had had a tonsillectomy by the time they attained age 19. Furthermore, only 29 per cent of the males and 33 per cent of the females in this age group had had their tonsils removed by age 39 compared with 54 and 56 per cent among those who were born in the later period, 1910-1929.

It is apparent that during the past thirty-nine years there has been no change in the frequency of tonsillectomy in the population studied. Also, it is an operative procedure applied to children and adults in every social class. According to Gale, "There are few subjects on which opinions are more divided than on that of tonsillectomy. The differences of opinion are reflected in the bewildering array of indications and contra-indications for operation given in textbooks of otolaryngology and of pediatrics." Gale then raises the question as to whether tonsillectomy does any good (3).

Gafafer in a study of adults found no significant difference with respect to frequency or severity of the common cold be-

tween those persons who had had a tonsillectomy and those who had not had a tonsillectomy (4). Kaiser followed 4,400 children for a period of ten years; half the number had had tonsils removed, the other 2,200 children had no tonsillectomy. Some advantages, such as fewer attacks of otitis media, were noted in the group where tonsils were removed (5).

In the study in Pleasantville and Mt. Kisco the incidence of all respiratory illness was generally similar among persons with tonsils present to persons with tonsils removed. On the other hand, children in the 5-18 year age group with tonsils present suffered an attack rate from tonsillitis and septic sore throat from 66 to 79 per cent higher than did children with tonsils removed. However, it should be emphasized that tonsillitis and septic sore throat comprise only 3 per cent of the total acute respiratory illness reported for the population studied in Westchester County (6). Such illnesses affect a small proportion of the total population.

There is need for more study of the effect of tonsillectomy upon the individual's health. Gale made the following comment about a study made in England: "In the report on epidemics in schools, which was concerned for the most part with children over 13 years of age, it was found that there was virtually no difference in the attack rates of nasopharyngeal infections, scarlet fever, rheumatism, appendicitis, otitis media (with or without mastoiditis), or pneumonia in the operated and unoperated groups. . . . This section of the report ends with the words: 'One cannot avoid the conclusion that there is a tendency for the operation to be performed as a routine prophylactic ritual for no particular reason and with no particular result'" (3).

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Appendix Table 1. Number of persons at specific ages when last observed, classified according to the occupation of the head of the household.

AGE GROUP	NUMBER OF PERSONS	
	Male	Female
	PROFESSIONAL AND MANAGERIAL CLASS	
1-19 Years	436	461
20-39 Years	175	263
40 and Over	299	246
	CLERICAL AND SKILLED WORKERS	
1-19 Years	313	308
20-39 Years	142	199
40 and Over	187	153
	SEMISKILLED AND UNSKILLED WORKERS	
1-19 Years	273	265
20-39 Years	145	188
40 and Over	178	143

APPENDIX 2

*Statistical Method Used to Obtain
Probability of Tonsillectomy*

Appendix Tables 3, 4, 5, 6, 7 and 8 give the detailed data from which the cumulative percentages shown in Figure 4 were derived.

The formula used for calculation of the probability of tonsillectomy is as follows: $q_x = \frac{t_x}{l_x}$ t_x = the number of tonsillectomies at each age.
 l_x = the number exposed to risk of tonsillectomy at each age.

For persons who were 1-19 and those aged 20-39 when last observed, l_x = the mean number exposed to risk at each age. In each of these age groups the persons included had not all reached the age limit of the group when last observed. The mean number exposed to the risk of tonsillectomy at a specific age was obtained by the inclusion of persons who passed that age plus one-half of those who had attained that age but did not reach a higher age when last observed. Inclusion of only one-half of the persons who did not reach a higher age was necessary since their complete experience concerning tonsillectomy at their last age was not known.

It was not necessary to calculate the mean number observed at each age for persons aged 40 and over. All had reached age 40 when last observed. There were only 4 males and 5 females who had had tonsils removed after age 40. Therefore, it was not considered important to show the data beyond the age of 40.

Appendix Table 3. Probability of tonsillectomy at specific ages among males 1-19 years of age in two communities, Pleasantville and Mt. Kisco, New York.

AGE IN YEARS	MEAN NUMBER AT EACH AGE AT RISK OF TONSILLECTOMY	NUMBER OF TONSILLECTOMIES PERFORMED AT EACH AGE	PERCENTAGE WITH TONSILLECTOMY PERFORMED AT EACH AGE	PERCENTAGE WITH NO TONSILLECTOMY AT EACH AGE	PERCENTAGE WITH NO TONSILLECTOMY THROUGH PRECEDING AND CURRENT AGES	PERCENTAGE WITH TONSILLECTOMY AT PRECEDING AND CURRENT AGES
1	998.5	9	0.9	99.1	99.1	0.9
2	946.5	36	3.8	96.2	95.3	4.7
3	876.0	73	8.3	91.7	87.4	12.6
4	794.0	76	9.6	90.4	79.0	21.0
5	725.0	120	16.6	83.4	73.8	26.2
6	613.5	70	11.4	88.6	65.4	34.6
7	596.0	48	8.1	91.9	60.1	39.9
8	547.5	28	5.1	94.9	57.0	43.0
9	510.0	22	4.3	95.7	54.5	45.5
10	448.5	21	4.7	95.3	51.9	48.1
11	391.0	10	2.6	97.4	50.6	49.4
12	353.5	7	2.0	98.0	49.6	50.4
13	305.5	9	2.9	97.1	48.2	51.8
14	255.5	2	0.8	99.2	47.8	52.2
15	218.5	3	1.4	98.6	47.1	52.9
16	166.0	3	1.8	98.2	46.3	53.7
17	91.0	0	0.0	100.0	46.3	53.7
18	41.0	1	2.4	97.6	45.2	54.8
19	6.5	0	0.0	100.0	45.2	54.8

Appendix Table 4. Probability of tonsillectomy at specific ages among females 1-19 years of age in two communities, Pleasantville and Mt. Kisco, New York.

AGE IN YEARS	MEAN NUMBER AT EACH AGE AT RISK OF TONSILLECTOMY	NUMBER OF TONSILLECTOMIES PERFORMED AT EACH AGE	PERCENTAGE WITH TONSILLECTOMY PERFORMED AT EACH AGE	PERCENTAGE WITH NO TONSILLECTOMY AT EACH AGE	PERCENTAGE WITH NO TONSILLECTOMY THROUGH PRECEDING AND CURRENT AGES	PERCENTAGE WITH TONSILLECTOMY AT PRECEDING AND CURRENT AGES
1	1,006.5	3	0.3	99.7	99.7	0.3
2	958.5	25	2.6	97.4	97.1	2.9
3	893.5	68	7.6	92.4	89.7	10.3
4	814.5	83	10.2	89.8	80.6	19.4
5	742.5	91	12.3	87.7	70.7	29.3
6	640.5	66	10.3	89.7	63.4	36.6
7	594.0	38	6.4	93.6	59.3	40.7
8	557.5	30	5.4	94.6	56.1	43.9
9	505.5	24	4.7	95.3	53.5	46.5
10	439.0	22	5.0	95.0	50.8	49.2
11	392.0	10	2.6	97.4	49.5	50.5
12	353.0	5	1.4	98.6	48.8	51.2
13	302.5	4	1.3	98.7	48.2	51.8
14	246.5	2	0.8	99.2	47.8	52.2
15	188.0	5	2.7	97.3	46.5	53.5
16	130.5	4	3.1	96.9	45.1	54.9
17	83.5	2	2.4	97.6	43.7	56.3
18	53.0	2	3.8	96.2	42.0	58.0
19	9.5	0	0.0	100.0	42.0	58.0

Appendix Table 5. Probability of tonsillectomy at specific ages among males aged 20-39 in two communities, Pleasantville and Mt. Kisco, New York.

AGE IN YEARS	MEAN NUMBER AT EACH AGE AT RISK OF TONSILLECTOMY	NUMBER OF TONSILLECTOMIES PERFORMED AT EACH AGE	PERCENTAGE WITH TONSILLECTOMY PERFORMED AT EACH AGE	PERCENTAGE WITH NO TONSILLECTOMY AT EACH AGE	PERCENTAGE WITH NO TONSILLECTOMY THROUGH PRECEDING AND CURRENT AGES	PERCENTAGE WITH TONSILLECTOMY AT PRECEDING AND CURRENT AGES
1	462	2	0.4	99.6	99.6	0.4
2	460	1	0.2	99.8	99.4	0.6
3	459	6	1.3	98.7	98.1	1.9
4	453	18	4.0	96.0	94.2	5.8
5	435	34	7.8	92.2	86.9	13.1
6	401	29	7.2	92.8	80.6	19.4
7	371	23	6.2	93.8	75.6	24.4
8	348	27	7.8	92.2	69.7	30.3
9	321	19	5.9	94.1	65.6	34.4
10	302	20	6.6	93.4	61.3	38.7
11	282	5	1.8	98.2	60.2	39.8
12	277	13	4.7	95.3	57.4	42.6
13	264	0	0.0	100.0	57.4	42.6
14	264	1	0.4	99.6	57.2	42.8
15	263	8	3.0	97.0	55.5	44.5
16	255	8	3.1	96.9	53.8	46.2
17	247	1	0.4	99.6	53.6	46.4
18	246	4	1.6	98.4	52.7	47.3
19	242	3	1.2	98.8	52.1	47.9

Appendix Table 5—Continued

AGE IN YEARS	MEAN NUMBER AT EACH AGE AT RISK OF TONSILLECTOMY	NUMBER OF TONSILLECTOMIES PERFORMED AT EACH AGE	PERCENTAGE WITH TONSILLECTOMY PERFORMED AT EACH AGE	PERCENTAGE WITH NO TONSILLECTOMY AT EACH AGE	PERCENTAGE WITH NO TONSILLECTOMY THROUGH PRECEDING AND CURRENT AGES	PERCENTAGE WITH TONSILLECTOMY AT PRECEDING AND CURRENT AGES
20	235.0	2	0.9	99.1	51.6	48.4
21	222.5	1	0.4	99.6	51.4	48.6
22	211.5	1	0.5	99.5	51.1	48.9
23	203.0	3	1.5	98.5	50.3	49.7
24	193.5	1	0.5	99.5	50.0	50.0
25	185.5	1	0.5	99.5	49.8	50.2
26	179.5	0	0.0	100.0	49.8	50.2
27	175.5	3	1.7	98.3	49.0	51.0
28	164.5	2	1.2	98.8	48.4	51.6
29	153.5	2	1.3	98.7	47.8	52.2
30	145.5	3	2.1	97.9	46.8	53.2
31	135.0	0	0.0	100.0	46.8	53.2
32	123.5	0	0.0	100.0	46.8	53.2
33	106.0	1	0.9	99.1	46.4	53.6
34	88.5	0	0.0	100.0	46.4	53.6
35	74.5	0	0.0	100.0	46.4	53.6
36	60.5	0	0.0	100.0	46.4	53.6
37	48.0	0	0.0	100.0	46.4	53.6
38	29.0	0	0.0	100.0	46.4	53.6
39	8.5	0	0.0	100.0	46.4	53.6

Appendix Table 6. Probability of tonsillectomy at specific ages among females aged 20-39 in two communities, Pleasantville and Mt. Kisco, New York.

AGE IN YEARS	MEAN NUMBER AT EACH AGE AT RISK OF TONSILLECTOMY	NUMBER OF TONSILLECTOMIES PERFORMED AT EACH AGE	PERCENTAGE WITH TONSILLECTOMY PERFORMED AT EACH AGE	PERCENTAGE WITH NO TONSILLECTOMY AT EACH AGE	PERCENTAGE WITH NO TONSILLECTOMY THROUGH PRECEDING AND CURRENT AGES	PERCENTAGE WITH TONSILLECTOMY AT PRECEDING AND CURRENT AGES
1	650	2	0.3	99.7	99.7	0.3
2	648	4	0.6	99.4	99.1	0.9
3	644	18	2.8	97.2	96.3	3.7
4	626	15	2.4	97.6	94.0	6.0
5	611	32	5.2	94.8	89.1	10.9
6	579	36	6.2	93.8	83.6	16.4
7	543	38	7.0	93.0	77.7	22.3
8	505	21	4.2	95.8	74.4	25.6
9	484	18	3.7	96.3	71.6	28.4
10	466	25	5.4	94.6	67.7	32.3
11	441	16	3.6	96.4	65.3	34.7
12	425	15	3.5	96.5	63.0	37.0
13	410	10	2.4	97.6	61.5	38.5
14	400	8	2.0	98.0	60.3	39.7
15	392	12	3.1	96.9	58.4	41.6
16	380	8	2.1	97.9	57.2	42.8
17	372	9	2.4	97.6	55.8	44.2
18	363	13	3.6	96.4	53.8	46.2
19	353	5	1.4	98.6	53.0	47.0

Appendix Table 6—Continued

AGE IN YEARS	MEAN NUMBER AT EACH AGE AT RISK OF TONSILLECTOMY	NUMBER OF TONSILLECTOMIES PERFORMED AT EACH AGE	PERCENTAGE WITH TONSILLECTOMY PERFORMED AT EACH AGE	PERCENTAGE WITH NO TONSILLECTOMY AT EACH AGE	PERCENTAGE WITH NO TONSILLECTOMY THROUGH PRECEDING AND CURRENT AGES	PERCENTAGE WITH TONSILLECTOMY AT PRECEDING AND CURRENT AGES
20	337.5	7	2.1	97.9	51.9	48.1
21	316.5	5	1.6	98.4	51.1	48.9
22	301.0	8	2.7	97.3	49.7	50.3
23	285.0	5	1.8	98.2	48.8	51.2
24	273.0	4	1.5	98.5	48.1	51.9
25	264.5	1	0.4	99.6	47.9	52.1
26	257.5	1	0.4	99.6	47.7	52.3
27	250.5	2	0.8	99.2	47.3	52.7
28	239.0	7	2.9	97.1	45.9	54.1
29	220.5	1	0.5	99.5	45.7	54.3
30	209.5	0	0.0	100.0	45.7	54.3
31	196.5	2	1.0	99.0	45.2	54.8
32	178.5	0	0.0	100.0	45.2	54.8
33	157.0	1	0.6	99.4	44.9	55.1
34	136.0	0	0.0	100.0	44.9	55.1
35	119.0	0	0.0	100.0	44.9	55.1
36	95.0	2	2.1	97.9	44.0	56.0
37	69.5	0	0.0	100.0	44.0	56.0
38	46.0	0	0.0	100.0	44.0	56.0
39	15.5	0	0.0	100.0	44.0	56.0

Appendix Table 7. Probability of tonsillectomy at specific ages among males aged 40 and over in two communities, Pleasantville and Mt. Kisco, New York.

AGE IN YEARS	NUMBER AT EACH AGE AT RISK OF TONSILLECTOMY	NUMBER OF TONSILLECTOMIES PERFORMED AT EACH AGE	PERCENTAGE WITH TONSILLECTOMY PERFORMED AT EACH AGE	PERCENTAGE WITH NO TONSILLECTOMY AT EACH AGE	PERCENTAGE WITH NO TONSILLECTOMY THROUGH PRECEDING AND CURRENT AGES	PERCENTAGE WITH TONSILLECTOMY AT PRECEDING AND CURRENT AGES
1	664	0	0.0	100.0	100.0	0.0
2	664	0	0.0	100.0	100.0	0.0
3	664	3	0.5	99.5	99.5	0.5
4	661	0	0.0	100.0	99.5	0.5
5	661	15	2.3	97.7	97.2	2.8
6	646	12	1.9	98.1	95.4	4.6
7	634	11	1.7	98.3	93.8	6.2
8	623	14	2.2	97.8	91.7	8.3
9	609	10	1.6	98.4	90.2	9.8
10	599	8	1.3	98.7	89.0	11.0
11	591	1	0.2	99.8	88.8	11.2
12	590	5	0.8	99.2	88.1	11.9
13	585	1	0.2	99.8	87.9	12.1
14	584	5	0.9	99.1	87.1	12.9
15	579	6	1.0	99.0	86.2	13.8
16	573	11	1.9	98.1	84.6	15.4
17	562	3	0.5	99.5	84.2	15.8
18	559	10	1.8	98.2	82.7	17.3
19	549	5	0.9	99.1	82.0	18.0

Appendix Table 7—Continued

AGE IN YEARS	NUMBER AT EACH AGE AT RISK OF TONSILLECTOMY	NUMBER OF TONSILLECTOMIES PERFORMED AT EACH AGE	PERCENTAGE WITH TONSILLECTOMY PERFORMED AT EACH AGE	PERCENTAGE WITH NO TONSILLECTOMY AT EACH AGE	PERCENTAGE WITH NO TONSILLECTOMY THROUGH PRECEDING AND CURRENT AGES	PERCENTAGE WITH TONSILLECTOMY AT PRECEDING AND CURRENT AGES
20	544	6	1.1	98.9	81.1	18.9
21	538	6	1.1	98.9	80.2	19.8
22	532	4	0.8	99.2	79.6	20.4
23	528	3	0.6	99.4	79.1	20.9
24	525	3	0.6	99.4	78.6	21.4
25	522	7	1.3	98.7	77.6	22.4
26	515	5	1.0	99.0	76.8	23.2
27	510	4	0.8	99.2	76.2	23.8
28	506	3	0.6	99.4	75.7	24.3
29	503	4	0.8	99.2	75.1	24.9
30	499	5	1.0	99.0	74.3	25.7
31	494	2	0.4	99.6	74.0	26.0
32	492	7	1.4	98.6	73.0	27.0
33	485	2	0.4	99.6	72.7	27.3
34	483	5	1.0	99.0	72.0	28.0
35	478	3	0.6	99.4	71.6	28.4
36	475	2	0.4	99.6	71.3	28.7
37	473	1	0.2	99.8	71.2	28.8
38	472	2	0.4	99.6	70.9	29.1
39	470	0	0.0	100.0	70.9	29.1
40	470	2	0.4	99.6	70.6	29.4

Appendix Table 8. Probability of tonsillectomy at specific ages among females aged 40 and over in two communities, Pleasantville and Mt. Kisco, New York.

AGE IN YEARS	NUMBER AT EACH AGE AT RISK OF TONSILLECTOMY	NUMBER OF TONSILLECTOMIES PERFORMED AT EACH AGE	PERCENTAGE WITH TONSILLECTOMY PERFORMED AT EACH AGE	PERCENTAGE WITH NO TONSILLECTOMY AT EACH AGE	PERCENTAGE WITH NO TONSILLECTOMY THROUGH PRECEDING AND CURRENT AGES	PERCENTAGE WITH TONSILLECTOMY AT PRECEDING AND CURRENT AGES
1	542	0	0.0	100.0	100.0	0.0
2	542	0	0.0	100.0	100.0	0.0
3	542	0	0.0	100.0	100.0	0.0
4	542	6	1.1	98.9	98.9	1.1
5	536	8	1.5	98.5	97.4	2.6
6	528	8	1.5	98.5	95.9	4.1
7	520	9	1.7	98.3	94.3	5.7
8	511	12	2.3	97.7	92.1	7.9
9	499	3	0.6	99.4	91.5	8.5
10	496	13	2.6	97.4	89.1	10.9
11	483	3	0.6	99.4	88.6	11.4
12	480	10	2.1	97.9	86.7	13.3
13	470	3	0.6	99.4	86.2	13.8
14	467	11	2.4	97.6	84.1	15.9
15	456	4	0.9	99.1	83.3	16.7
16	452	4	0.9	99.1	82.6	17.4
17	448	6	1.3	98.7	81.5	18.5
18	442	6	1.4	98.6	80.4	19.6
19	436	2	0.5	99.5	80.0	20.0

Appendix Table 8—Continued

AGE IN YEARS	NUMBER AT EACH AGE AT RISK OF TONSILLECTOMY	NUMBER OF TONSILLECTOMIES PERFORMED AT EACH AGE	PERCENTAGE WITH TONSILLECTOMY PERFORMED AT EACH AGE	PERCENTAGE WITH NO TONSILLECTOMY AT EACH AGE	PERCENTAGE WITH NO TONSILLECTOMY THROUGH PRECEDING AND CURRENT AGES	PERCENTAGE WITH TONSILLECTOMY AT PRECEDING AND CURRENT AGES
20	434	10	2.3	97.7	78.2	21.8
21	424	5	1.2	98.8	77.3	22.7
22	419	5	1.2	98.8	76.4	23.6
23	414	6	1.4	98.6	75.3	24.7
24	408	4	1.0	99.0	74.5	25.5
25	404	6	1.5	98.5	73.4	26.6
26	398	6	1.5	98.5	72.3	27.7
27	392	2	0.5	99.5	71.9	28.1
28	390	2	0.5	99.5	71.5	28.5
29	388	3	0.8	99.2	70.9	29.1
30	385	4	1.0	99.0	70.2	29.8
31	381	4	1.0	99.0	69.5	30.5
32	377	1	0.3	99.7	69.3	30.7
33	376	2	0.5	99.5	69.0	31.0
34	374	2	0.5	99.5	68.7	31.3
35	372	3	0.8	99.2	68.2	31.8
36	369	2	0.5	99.5	67.9	32.1
37	367	2	0.5	99.5	67.6	32.4
38	365	2	0.5	99.5	67.3	32.7
39	363	1	0.3	99.7	67.1	32.9
40	362	0	0.0	100.0	67.1	32.9